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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,589	06/30/2004	Stefan Clauss	2893	4763

7590 10/24/2006
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EXAMINER

BENSON, WALTER

ART UNIT PAPER NUMBER

2858

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/500,589	Applicant(s) CLAUSS ET AL.	
	Examiner Walter Benson	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>hereto</u> . |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. Claims 1-20 are presented for examination.

Claim Objections

2. Claims are objected to because of the following informalities:

Page 2, amendment filed 6/28/06, "In the claims " should read –We Claim--.

Appropriate correction is required

3. Claim 1 is objected to because of the following informalities:

In lines 6 and 7, "measuring impedance so that a value and a phase of a complex resistance are measured". is unclear. It appears that should read –measuring impedance so that real and imaginary components of a complex resistance Z are measured--

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-5, 7-12, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Goldfine et al. (US Patent No. 6,781,387 and Goldfine hereinafter).

6. As to claims 1 and 20, Goldfine discloses a method for locating objects enclosed in a medium, according to which a detection signal is generated by at least one capacitive sensor device [col. 5, lines 12-13], the detection signal penetrating the medium that is to be analyzed in such a way that information is obtained about the objects that are enclosed in the medium by evaluating the detection signal, particularly by measuring impedance so that a value and a phase of a complex resistance are measured [col. 5, lines 18-24], where, to evaluate the detection signal, an algorithm is used that separates the measured signal into signal parts originating from the enclosing medium and signal parts originating from the object enclosed in the medium (col. 5, lines 26-35).

further as in claim 20, where a measuring signal as a function of a lateral displacement of the sensor device generating the detection signal is measured and evaluated (col. 13, lines 1-9).

7. As to claim 2, Goldfine discloses:

where, to determine the part of the signal that originates from the enclosing medium, a model that has n parameters is used for the material of the enclosing medium (col. 5, lines 36-40).

8. As to claim 3, Goldfine discloses:

where the n parameters of the model for the enclosing medium are stored in the form of a

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program map and are capable of being queried by an evaluation algorithm (col. 5, lines 40-44).

9. As to claim 4, Goldfine discloses:

where the parameters of the program map are obtained by performing n reference measurements at defined impedances (col. 6, lines 10-15).

10. As to claim 5, Goldfine discloses

where at least one reference measurement is carried out on a known reference material (col. 5, lines 48-55).

11. As to claim 7, Goldfine discloses:

where, to determine the material of the enclosing medium, an interpolation of a material value that is measured for the enclosing medium with the n parameter values of the model is carried out, and the material of the enclosing medium is approximately determined using a reference optimization (col. 6, lines 1-5).

12. As to claim 8, Goldfine discloses:

where a value for the dielectric constants of the material forming the enclosing medium is determined from the interpolation of a material value that is measured for the enclosing medium with the n parameter values of the model (col. 6, lines 26-36).

13. As to claim 9, Goldfine discloses:

where depth information about the object enclosed in the medium is obtained by using the dielectric constants of the material of the enclosing medium that were determined (col. 7, lines 16-23).

14. As to claim 10, Goldfine discloses:

where the depth information about the enclosed object is obtained using the dielectric constants of the enclosing medium from a phase measurement of that part of the measured signal that originates from the object enclosed in the medium (Fig. 8; col. 8, lines 27-31).

15. As to claim 11, Goldfine discloses:

where the signal is measured and evaluated as a function of a lateral displacement of the sensor device that is generating the detection signal (col. 13, lines 1-9).

16. As to claim 12, Goldfine discloses:

wherein the signal is measured and evaluated as a function of more than one measuring frequency (col. 5, lines 50-55 and col. 13, lines 10-20)

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 13-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldfine in view of Goldfine et al. (US Patent No. 6,781,387 and Goldfine (387) hereinafter).

Although the system disclosed by Goldfine shows substantial features of the claimed invention (discussed in the paragraphs above), it fails to disclose:

a measuring device, in particular a hand-held locating device for locating objects enclosed in a medium, having a sensor device, with means for generating a detection signal for the sensor device, a control and evaluation unit for determining measured values from the detection signal, and an output device for the determined measuring devices [claim 13];

where the measuring device includes at least one internal calibration device for a measured signal [claim 14];

where the calibration device enables measurement of at least one defined impedance [claim 15];

where the measuring device includes switching means for temporary activation of the calibration device [claim 17];

where the measuring device includes means for saving material data, in particular dielectric constants, of known materials [claim 18];

where the measuring device includes means that permit calculated measured results, in particular the position and/or depth of an object enclosed in a medium, to be depicted in a spatially-resolved manner on a display device of the measuring device [claim 19].

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Goldfine, as evidenced by Goldfine (387).

Goldfine (387) discloses a hand held inspection method for detecting objects having:
a measuring device, in particular a hand-held locating device for locating objects enclosed in a medium, having a sensor device, with means for generating a detection signal for the sensor device, a control and evaluation unit for determining measured values from the detection signal, and an output device for the determined measuring devices [claim 13] (Fig. 7B; col. 7, lines 41-46 and col. 8, lines 13-35) for detecting object sizes, depths, shapes etc;

where the measuring device includes at least one internal calibration device for a measured signal [claim 14] (col. 9, lines 7-12) to estimate one or more properties of the object based on a modeled response;

where the calibration device enables measurement of at least one defined impedance [claim 15] col. 8, lines 20-33) to account for variations to the excitation sensor;

where the measuring device includes switching means for temporary activation of the calibration device [claim 17](col. 6, lines 64-67) to identify operating conditions that provide maximum selectivity;

where the measuring device includes means for saving material data, in particular dielectric constants, of known materials [claim 18] (col. 9, lines 13-18) for real time measurements;

where the measuring device includes means that permit calculated measured results, in particular the position and/or depth of an object enclosed in a medium, to be depicted in a

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spatially-resolved manner on a display device of the measuring device [claim 19] (col. 8, lines 20-33).

Given the teaching of Goldfine (387), a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Goldfine by employing the well known or conventional features of capacitance sensing, such as disclosed by Goldfine (387), in order to permit precise determination of material properties in the Goldfine system and for the purposes discussed above.

Response to Arguments

19. Applicant's arguments with respect to claims 1, 3, 10 12, 13, and 20 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

20. Claims 6 and 16 are allowable over the prior art of record.


The prior art of record fails to teach in combination as claimed a method for locating objects enclosed in the medium where the measuring device includes at least one internal calibration device for a measured signal and the calibration device includes a short-circuit switch for generating a defined impedance.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Benson whose telephone number is (571) 272-2227. The examiner can normally be reached on Mon to Fri 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Walter Benson
Primary Examiner

October 17, 2006